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stars of a ruddy tinge in the neighbourhood. As I have repeatedly met with reddish variable stars, this object has been closely watched since the above date, but no alteration was perceived till the evening of November 14, in the present year, when I found the star decidedly *bluish*, the red tinge having vanished entirely. Perhaps it would now be most accurately described as *bluish white*. I am not able to furnish the exact position of this star, but the rough place above given will be quite near enough to ensure the observation of the right object."

*Mr. Boreham remarks, "The star Argelander Zone 5, No. 26, does not exist."

"There is a star with a declination (1850·0) + 54° 40′ 21″·8, which agrees with it in R.A. It is probably the same as B.A.C. 4845 = Groombridge 2138."

*Mr. John Drew, F.R.A.S., of Southampton, has sent an extract from his observing-book, which shows very clearly that his sidereal time may be relied on to a small portion of a second. Mr. Drew has replaced his original transit by a transit-circle, which, however, as yet has only been employed in observing right ascensions.

Mr. Stebbing, who has charge of the chronometers of the steamboats from Southampton, has taken Mr. Drew's transit, and proposes to find the rates and errors of his chronometers by astronomical observations.†

On the Influence exerted by Heat upon the Dispersive and Refractive Power of Liquids. Preliminary Observations.

By Rev. T. Pelham Dale.

This paper contains a numerical statement of the values found by the use of Professor Powell's apparatus (formerly employed for the determination of values communicated by Professor Powell to the British Association, and now lent by him to Mr. Dale), for the indices of refraction of Fraunhofer's lines, B, C, D, E, F, G, H, in distilled water, alcohol, Fusel oil, pyroxalic spirit, and bisulphuret of carbon, at temperatures ranging (for the most part) from 10° to 35° centigrade.

It does not appear that similar measures have been made before these.

The author describes in detail the method of using the apparatus. He remarks, however, that though the change of refractive index in general is obtained with great accuracy, the charge of irrationality can hardly be deduced from these measures.

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† It is to be hoped that this example will be followed. Accidents at sea, owing to bad chronometers or imperfect compasses, *ought* to be reckoned with things that *have* been. There *need* not be any casualties arising from such causes.

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Mr. Cullimore remarks that, on comparing the distances of the moon and of the external satellites of *Jupiter* and *Saturn* with the distance of each planet respectively from the sun, the ratio is nearly the same, *i.e.* about 1 : 400. This remarkable analogy leads him to suspect that the law may be more general, and that it would be worth while to look for an exterior satellite of *Uranus* and of *Neptune* at the same relative distance.

**Letter from the Rev. W. Read, Vicarage, South Mimms.*

"On Wednesday the 4th of September, about half-past nine A.M., while engaged in adjusting my equatoreal for observing the planet *Mercury*, I was much surprised to find great numbers of self-luminous bodies traverse the field of view of the telescope.

"They passed with different velocities, some slowly, and others with great rapidity; possessing apparently about the brightness of *Venus*, with which I compared them; and with discs all perfectly round and well defined.

"They appeared to occupy a zone several degrees in breadth, the centre of which was about 44° altitude. Their size was extremely varied, from about 2″ or even less, to about 20″, and a few much larger, which seemed to move with less velocity than the others, and had, perhaps, not quite so great brilliancy.

"The direction they took, principally, was from due east to west; but many passed at angles a little differing therefrom, while some took a direction from north to south; but I believe none in the contrary order.

"I continued to observe them at intervals, for about six hours, during which period there was scarcely any cessation; sometimes crowding through the field of view so numerously as not to permit them to be counted.

"The number which passed must have been inconceivably great; as, though the telescope was moved through a zone of several degrees in breadth, they appeared equally numerous; but if there were any perceptible difference, they seemed to be rather more frequent in the immediate vicinity of the equator.

"There were very few shooting stars at night; and I only noticed one, during a long and attentive observation on the day following.

"They readily bore a magnifying power; and where a high one was applied, no spots or variable brightness in the discs of even the largest were discernible.

"They appeared self-luminous; as when viewed even near the sun, they still retained their perfect round form, without gibbosity or crescent shape.

"I may mention that the telescope employed is one of Dollond's, $2\frac{3}{4}$ inches aperture, $3\frac{1}{2}$ feet focal length, and admirable in its performance. I counted many hundreds, though the field of view was so small." †

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† May not these appearances be attributed to an abnormal state of the optic nerves of the observer? *Editor*.

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